Title: Random Forest Feature Selection, Fusion and Ensemble Strategy: Combining Multiple Morphological MRI Measures to Discriminate among healhy elderly, MCI, cMCI and Alzheimer's disease patients: from the Alzheimer's disease neuroimaging initiative (ADNI) database

Authors: S.I. Dimitriadis, D. Liparas, Magda N. Tsolaki, for the Alzheimer's Disease Neuroimaging Initiative

PII: S0165-0270(17)30427-2
DOI: https://doi.org/10.1016/j.jneumeth.2017.12.010
Reference: NSM 7916

To appear in: *Journal of Neuroscience Methods*

Received date: 30-7-2017
Revised date: 14-12-2017
Accepted date: 17-12-2017

Please cite this article as: Dimitriadis SI, Liparas D, Tsolaki Magda N.Random Forest Feature Selection, Fusion and Ensemble Strategy: Combining Multiple Morphological MRI Measures to Discriminate among healhy elderly, MCI, cMCI and Alzheimer's disease patients: from the Alzheimer's disease neuroimaging initiative (ADNI) database.*Journal of Neuroscience Methods* https://doi.org/10.1016/j.jneumeth.2017.12.010

Random Forest Feature Selection, Fusion and Ensemble Strategy: Combining Multiple Morphological MRI Measures to Discriminate among healhy elderly, MCI, cMCI and Alzheimer's disease patients: from the Alzheimer's disease neuroimaging initiative (ADNI) database

Dimitriadis, S.I.[a,b,c,d,e*], Liparas, D.[f,g,*], and Magda N.Tsolaki[e] for the Alzheimer's Disease Neuroimaging Initiative[1]

[a] Neuroscience and Mental Health Research Institute, Cardiff University, Cardiff, UK.

[b] Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff University, Cardiff, UK

[c] MRC Centre for Neuropsychiatric Genetics and Genomics, Institute of Psychological Medicine and Clinical Neurosciences, Cardiff School of Medicine, Cardiff University, Cardiff, UK

[d] Neuroinformatics Group, (CUBRIC), School of Psychology, Cardiff University, Cardiff, UK

[e] School of Psychology, Cardiff University, Cardiff, UK

[f] High Performance Computing Center Stuttgart (HLRS), University of Stuttgart, Stuttgart, Germany

[g] Department of Informatics, Aristotle University of Thessaloniki, Thessaloniki, Greece

[e] 3rd Department of Neurology, Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece

Contact:

Email: DimitriadisS@cardiff.ac.uk, stidimitriadis@gmail.com ; liparas@hlrs.de, dliparas83@gmail.com

***The first two authors contributed equally**

[1] All the data used in preparation of this article were obtained from the Alzheimer's Disease Neuroimaging Initiative (ADNI) database (adni.loni.usc.edu). The investigators within the ADNI contributed to the design and implementation of ADNI and/or provided data but did not participate in analysis or writing of this report. A complete listing of ADNI investigators can be found at: http://adni.loni.usc.edu/wp-content/uploads/how_to_apply/ADNI_Acknowledgement_List.pdf.

The preprocessing of the T1-weighted Magnetic Resonance Images (MRI) was conducted by the organizers of the competition; information can be found here : https://inclass.kaggle.com/c/mci-prediction